



# AEC-NASA TECH BRIEF



AEC-NASA Tech Briefs announce new technology derived from the research and development program of the U.S. AEC or from AEC-NASA interagency efforts. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Office, NASA, Code KT, Washington, D.C. 20546.

## Strengthening Lightweight Concrete

Polymer impregnation substantially strengthens lightweight concretes. Vacuum soaking followed by radiation polymerization using a  $\text{Co}^{60}$  gamma source impregnates perlite concrete, foamed glass concrete, and mearlcrete with polymethyl methacrylate. This process improves the bond between the cement and aggregate and strengthens the cement phase.

With this process the concretes absorb polymer ranging from 31 percent (by volume) for foamed glass concrete to 49 percent for perlite concrete. Compressive strength of unimpregnated samples, generally, is less than 1000 psi. Compressive strength of most impregnated samples varies from 3000 to 6000 psi. Adding 15 percent polymer to concrete having an unimpregnated strength of 5000 psi increases its strength to the 18,000 to 20,000 psi range.

The lightweight concretes strengthened by the polymer impregnation process should be a useful development for the construction industry.

### Note:

Requests for further information may be directed to:

Mr. Glenn K. Ellis  
Technology Utilization Officer  
Office of Information Services  
U.S. Atomic Energy Commission  
Washington, D.C. 20545  
Reference: TSP72-10430

### Patent status:

Inquiries concerning rights for commercial use of this information may be made to:

Mr. George H. Lee, Chief  
Chicago Patent Group  
U.S. Atomic Energy Commission  
Chicago Operations Office  
9800 South Cass Avenue  
Argonne, Illinois 60439

Source: Allen Auskern  
Brookhaven National Laboratory  
under contract to  
Atomic Energy Commission  
(AEC-10017)

Category 04